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ABSTRACT

The purpose of this study was to determine if basic organizational hierarchical needs (BOHN) help govern the decisionmaking behavior of elementary school principals, and if these needs can be influenced by an immediate administrator. Three groups of graduate students were placed in a simulated setting, indoctrinated in the principal's role, and assigned superintendents with different leadership styles. Support was discovered for the BOHN concept and the underlying prepotency and need satiation theory. Results of Scheffe's comparisons indicate that only effective superintendents influenced the principal's BOHN operating level and differentially affected task- and human relations-oriented principals. (Author)

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EFFECTS OF TWO STYLES OF LEADERSHIP ON
PARTICIPANTS PERCEPTION OF BASIC ORGANIZATIONAL HIER-
ARCHICAL NEEDS IN A SIMULATED DECISION-MAKING SETTING

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EFFECTS OF TWO STYLES OF LEADERSHIP ON PARTICIPANTS PERCEPTION OF BASIC ORGANIZATIONAL HIERARCHICAL NEEDS IN A SIMULATED DECISION-MAKING SETTING

Concern about the public schools' ability to satisfy student needs, minority needs, and societal needs is being expressed in different forms and, indeed, from widely differing quarters. Administrators play a very vital role in the fulfillment of many of these needs. How do principals perceive the total complex of needs within their particular school setting?

This study was concerned with the proposition that basic organizational hierarchical needs (BOHN) are important and are carefully considered in an elementary principal's decision-making. The specific research questions were:

- a. Do BOHN help govern the decision-making behavior of elementary school principals?
- b. If so, does his immediate administrator's leadership behavior affect the principal's perception of BOHN?

School districts are confronted with a variety of problems. A school district in a poor community may have reached the legal bonded-indebtedness limit and be faced, simultaneously, with an escalating pupil enrollment. A district like this, faced with survival problems, tries to find ways to exist on limited funds. Saving money is the primary motivation for being innovative. For example, it may adopt a year-round schedule for this purpose. By contrast, a district in a wealthy community may not view the adoption of a year-round schedule as an attempt to save money, but rather, to "provide enrichment".

Thus it seems reasonable to assume that the individual administrator's decision-making in the above-mentioned districts would be motivated by different needs and objectives. If organizations have needs, and organizational objectives are related to the satisfaction of these needs, then it also seems reasonable to assume that administrators' decision-making will be influenced by the necessity of relating the organizational objectives to its needs.

Basic Organization Hierarchical Needs

A concept of BOHN was developed by Thompson, Hearn and Fox¹ and patterned after Maslow's² hierarchy of individual needs motivation-theory. These five organizational needs are survival, security, acceptance, esteem-prestige and autonomy. Thompson et al. conclude that college presidents of private liberal arts colleges considered BOHN in their financial decision-making and suggest that more studies be performed to determine if a similarly ordered hierarchy can be extended mutatis mutandis to all varieties of formal organizations.

The present study was designed to extend the BOHN concept to the elementary school organization and principal in a simulated setting in two ways: a) by analyzing graduate administration students' responses on an adapted form of the Thompson et al. questionnaire in relation to the Considered BOHN Form, and b) by comparing the effects of two different types of immediate administrator (second level) behavior on the principal's (first level) perception of BOHN in their decision-making.

The Thompson et al. questionnaire of BOHN, adapted for an elementary school principal, employed the above five particular organization needs. The needs are stated as follows: (the particular need is in parenthesis from low to high) and are in hierarchical order with the lower level needs deemed most basic.

1. The need for an elementary school to perpetuate itself at any cost. (Survival)
2. The need to feel relatively safe or free from threat to institutional character. (Security)
3. The need to maintain or expand effective mechanisms of adjustment of individuals and sub-groups to the conditions of life within and outside the organization. (Acceptance)
4. The need to establish, maintain or expand within ^{the} local school district an institutional reputation for quality and achievement. (Esteem-prestige)
5. The need for an elementary school to exercise self-government or the full control of its own affairs. (Autonomy)

The above five items are also included in the Considered BOHN Form.

Leadership Style at Two Levels

If BOHN are considered in the decision-making process of elementary school principals, then it seems reasonable to assume that they can be modified. It was felt that in this simulation study the most efficient way to modify a principal's decision-making was to assign him to a superintendent. The Gross and Herriott³ study demonstrated that there is a positive relationship between the Executive Professional Leadership (EPL) displayed by an immediate administrator (superintendent) and the EPL score of his principals. Halpin⁴ indicates that there is a propensity for a superintendent to prefer principals characterized as being high on initiating structure (IS) and consideration (C). A cause and effect relationship was not demonstrated in either study; it is unlikely that superintendents can change a principal's leadership style since it is a function of personality. It is more likely that superintendents select personnel similar to their individual leadership styles. However the superintendents legal and official position in an organization enables him to influence the principal's decision-making.

Other studies of leadership have referred to the possible differences in leadership requirements at different administrative levels. Mann⁵ states that different styles of leadership were required at different managerial levels to satisfy subordinates in a hospital. Nealey and Blood⁶ conducted a study in a Veteran's Administration Hospital and found both favorable performance and satisfaction required different leadership styles at different hierarchical levels. Hunt⁷ concludes from an experiment that employing managers (first level) with high Least Preferred Co-worker (LPC)⁸ scores and executives (second level) with low LPC scores would provide an optimum leadership combination that would improve team performance.

Thus it was argued that there seemed to be enough evidence to suggest that if BOHN were considered by principals in their decision-making, then these needs would be effected differently by superintendents with different leadership styles.

Simulation Setting

The University Council for Educational Administration (UCEA)⁹ has produced several generations of simulation material for the preparation of school administrators. The Edison Elementary School, a part of the simulated Madison School District, was the setting for this study. The participants were indoctrinated into the Edison Elementary School Principalship by the use of these simulation materials.

No information of the superintendent's leadership behavior is found in the simulation materials. Consequently a critical problem that needed solving was how to express and communicate a superintendent's leadership behavior in such a manner that it could be integrated into the simulation material. Lowin, Hrapchak and Kavanagh¹⁰ partially solved a similar problem in an experiment involving the manipulation of IS and C leadership behavior. Ten IS and C items were randomly selected from the 48-item Supervisory Behavior Description Questionnaire (SBDQ)¹¹. A minimum amount of filler was added and a script was written to represent different leadership behavior. A similar method was employed in this study. Two separate letters were composed: one representing a superintendent characterized as being high on IS and C and the other low on IS and C¹². Twenty-one items (ten IS and eleven C) were selected from the SBDQ. Factor loadings for each item indicated which items were matched but required opposite scripts. This was difficult to do in a few instances, and the criteria of independence between C and IS were not rigidly observed. However, since independence was not a critical criterion in this study it was thought that no confounding of leadership behavior would be perceived by the principal.

The letters are awkward in places and do not always seem to represent a school superintendent's correspondence to his principals. It was felt that an awkward letter, with rather faithful replication of the items, would represent the kind of leader needed in this study, rather than one who appeared more appropriate, but subject to misinterpretation of C and IS. After being indoctrinated into the principal's role, the participants were required to complete 47 in-basket items (make decisions) which are representative of the everyday problems of the principal.

Design and Methodology

The subjects were 54 graduate students who had earned credit for at least one course in educational administration. All were enrolled in elementary school administration classes in which the Edison Elementary School simulation material was used as an instructional method.

All subjects were administered the previously described LPC; the scores were used to identify leadership style and to determine if all three groups were similar. Each of the three classes was introduced to the simulation material in an identical manner. Included in the materials for two groups was a letter from their immediate administrator, the superintendent. One group received no letter, consequently they were not aware of the superintendent's leadership style.

Placing a principal in a situation without having an immediate superior communicate his leadership style is somewhat artificial, but was included in this study for the following reasons: a) the UCEA simulation material does not include the behavior or leadership style of the superintendent of the Madison School District, b) this is the principal's first job and it was assumed that a beginning principal may not be immediately aware of his superintendent's leadership behavior, and c) to function as a control group.

Each class was given a different treatment. Group 1, N=16, was assigned a superintendent characterized as being low in IS and C. Group 2, N=20, was considered as a control group and was not informed of the superintendent's leadership behavior. Group 3, N=18, was assigned a superintendent characterized as being high on IS and C.

After the class had completed the in-basket items, they were asked to complete the adaptation of the Thompson et al. BOHN questionnaire. The principals were also required to decide which organizational need was being considered in making their decisions for each of the 47 in-basket items on the Considered BOHN Form. The BOHN, as previously described, were listed at the top of the form. The directions on the BOHN Form specified

that a zero (0) meant that no organizational need was considered in making a decision. A five (5) represented that the highest ordered need was considered.

Results

After reading an explanation the BOHN theory developed at a conceptual level, the respondents completed the questionnaire as shown in Table 1.

TABLE 1 ADAPTED THOMPSON et al. QUESTIONNAIRE ON BASIC ORGANIZATIONAL AND HIERARCHICAL NEEDS

(1-A) To what degree do you feel basic organization needs (such as these individually or as a set) are influential in making decisions for your school?		()	()	()	()	()
		Of great influence		Of moderate influence		Of no influence
(1-B) When making decisions for your school, what consideration have you given to the basic organization needs as described on this page?		()	()	()	()	()
		Most of these needs thoroughly considered	Some needs more thoroughly considered than others	Only 1 or 2 of these needs usually considered in any given decision	None of these needs normally considered	Not certain
Yes	No	(1-C)	In making decisions for the school, do you feel that basic organizational needs such as these should be considered more fully than you indicated in (1-B)?			
Yes	No	(1-D)	Do you agree that a particular decision might satisfy one or another of these needs, but not most or all of the basic organization needs at the same time? (e.g., [fictitious] accepting or applying for funds through ESEA for a material center to maintain or expand, within your school district, your institutional reputation for quality and achievement but not help satisfy the need to maintain or expand effective mechanisms of adjustment of individuals and subgroups to the conditions of life within the organization).			
Yes	No	(1-E)	Do you agree that in making a particular decision, one or another of these basic organizational needs may take precedence over other needs? (e.g., [fictitious] the need to feel relatively safe or free from threat to institutional character would have to be relatively satisfied before the need for your school to exercise self-government or the full control of its own internal affairs would be considered).			
Yes	No	(1-F)	I believe all the needs as listed on page 1 to be of relatively equal importance in my making decisions for the school.			
Yes	No	(1-G)	Is there another arrangement of needs which might be more suitable than a hierarchical ranking?			

The results of the questionnaire are found in Tables 2 and 3. The first two items are Likert type scales. The range of the Likert scales is from one to five. A one (1) would indicate no influence, and a five (5) represents great influence in considering the BOHN in decision-making. Cell frequencies, means and chi-squares are shown for items 1-A and 1-B in Table 2. The remaining five items required a yes or no response, and frequencies and chi-squares are shown in Table 3.

TABLE 2 RESULTS OF THE ADAPTED THOMPSON et al. QUESTIONNAIRE ON BASIC ORGANIZATIONAL HIERARCHICAL NEEDS

Group 1 (Low IS and C) N=16			Group 2 (Control) N=20			Group 3 (High IS and C) N=18			χ^2
Question	High	Low	Mean	High	Low	Mean	High	Low	
1-A	7	9	3.38	14	6	3.90	10	8	2.54
1-B	9	7	4.11	16	4	4.85	13	5	2.44

TABLE 3 THE ADAPTED THOMPSON et al. QUESTIONNAIRE ON BOHN

	Yes	No	Yes	No	Yes	No	χ^2
1-C	4	12	7	13	6	12	.455
1-D	15	1	22	0	18	0	N.C.
1-E	15	1	13	7	15	3	4.75
1-F	4	12	5	15	4	14	.05
1-G	5	11	3	17	6	12	1.99

(N.C.) Not computed - cell frequencies too small

Chi-square tests for significant differences were applied to six of the seven items. The responses for questions 1-A and 1-B were compressed to avoid zero cell frequencies. Responses of 4 and 5 were placed into the high cell and 1, 2, and 3 were placed into low cell.

Results from the six chi-square tests show that none of the items reached significance at the .01 level. It seems reasonable to conclude that the principal's immediate administrators leadership behavior had no effect on principal's responses to the questionnaire.

The means of items 1-A and 1-B indicate that most principals believe some basic organizational needs are more thoroughly considered than others in decision-making, and that these organizational needs are, at least, of moderate influence.

The results of item 1-C show that from 65% to 75% of the principals felt that basic organizational needs should not be considered more fully than they had indicated.

Item 1-D shows that almost every principal agrees that a particular decision might satisfy one or another need, but not most or all of the basic organizational needs.

The results of 1-E show that the majority of principals agree that in making a particular decision, one or another of these basic needs may take precedence over other needs.

The results of items 1-F and 1-G show a majority of principals do not believe that all needs are of relatively equal importance in making decisions for the school; that they do not believe that there might be a more suitable arrangement of needs than a hierarchical ranking.

The mean scores on the LPC scale for each group is shown on Table 4.

TABLE 4 MEANS AND STANDARD DEVIATIONS OF THE LEAST PREFERRED CO-WORKERS (LPC) SCALE FOR THE THREE GROUPS

Group	$\bar{X}$	N	S.D.
Group 1	47.25	16	15.42
Group 2	47.85	20	13.19
Group 3	46.44	18	17.37

The F value in Table 5 of less than one indicates that there is no significant mean difference between these three populations, and each group was assumed to be similar with respect to leadership style.

TABLE 5 SUMMARY OF ANALYSIS OF VARIANCE FOR DATA IN TABLE 4

Source	SS	df	MS	F
SS Between	18.76	2	9.38	.037
SS Within	12717.99	51	249.37	
Totals	12735.75			

Table 6 shows the mean scores for each group on the Considered BOHN Form.

TABLE 6 MEANS ON THE CONSIDERED BOHN FORM FOR EACH OF THE THREE GROUPS

	Group 1	Group 2	Group 3
n	16	20	18
$\bar{X}$	144.43	135.8	118.72

Table 7 shows the summary of ANOVA on the data in Table 6.

TABLE 7 SUMMARY OF ANALYSIS OF VARIANCE FOR DATA IN TABLE 6

Source	SS	df	Variance Estimate
Between	5888.68	2	$2944.34 = S_b^2$
Within	52602.34	51	$1031.41 = S_w^2$

Table 8 shows the results of three comparisons using an F test.

TABLE 8 F VALUE FOR THREE COMPARISONS

Comparisons	F
1, 3	5.42*
1, 2	.80
2, 3	2.37

* Sig. at .10 (df = 2, df = 51)

According to Ferguson¹³, the Scheffé procedure is more rigorous than other procedures and will lead to fewer significant results. Because this is so, Scheffé's¹⁴ recommendation that a .10 level may be used instead of the .05 level was employed in this study.

Results of the multiple comparisons in Table 8 indicate that the F value was significant at the .10 level only for the comparison between Groups 1 and 2.

Table 9 shows the Pearson product-moment correlation between LPC scores and scores on the Considered BOHN Form for each of the three groups.

TABLE 9 CORRELATIONS BETWEEN LEAST PREFERRED CO-WORKERS SCORES AND SCORES ON THE CONSIDERED BOHN FORM FOR EACH GROUP

Group 1	Group 2	Group 3
.22	.08	-.60*

* Sig. at .01

Only principals in Group 3 showed a significant and negative correlation, $r = -.60$. Thus the principal's leadership style and the principal's operating BOHN level in his decision-making showed no significant correlation if the principal's immediate administrator was perceived as being low in IS and C or whose leadership behavior was not yet perceived by the principal. If his immediate administrator was perceived as being high on IS and C, a low LPC scoring administrator considered a higher order BOHN in his decision-making than the high scoring LPC principal who considered the lower order BOHN in his decision-making.

Discussion

The results of the principals' responses to the questionnaire seem to support the possibility of a motivational hierarchy of organizational needs that maybe of a stable and global nature. Regardless of the treatment, each of the three groups responded to the questionnaire in a similar manner; these results are also similar to those reported

in the Thompson et al.¹⁵ study.

The results of three comparisons (calculated from the scores on the Considered BOHN Form) indicate that an effective immediate administrator can influence his subordinates' operating level of BOHN in decision-making. Principals from Group 3 were operating on a significantly lower level than principals from Groups 1 and 2; no significant difference between Groups 1 and 2 principals' operating level was discovered.

Many in-basket items required decisions that dealt with such possible conflict situations involved in intraorganizational and extraorganizational boundaries, communication networks, role clarification, interpretation of rules and policies, and other uncertain settings.

The superintendent who was perceived as being unable to provide leadership to help solve problems, such as those mentioned above, may have been appraised as ineffective (one low in IS and C). It seems likely that a principal under this leadership would then consider BOHN in much the same manner as a principal who had not yet perceived his immediate administrators leadership behavior. Thus, the effects of an ineffective second level administrator on the principals' perception of BOHN in decision-making may be equivalent, and not a hindrance, with an immediate administrator whose leadership behavior had not yet been perceived by the principal.

The significant negative correlation between principals' LPC scores and scores on the Considered BOHN Form indicates that a second level administrator who is high on IS and C influences the first level administrators' perception of BOHN. The principals in Group 3 who are primarily task oriented (low LPC scores) operated at a higher ordered BOHN e.g. Acceptance, Esteem-prestige, and Autonomy, while high LPC principals, who are primarily oriented toward the establishment and maintenance of interpersonal relations, operated at a lower level BOHN e.g. Survival, Security and Acceptance in their decision-making.

What may have occurred is that the task-oriented principal, in reacting to his high

IS and C superintendent, may feel that the amount of IS communicated by his superior, plus his task oriented behavior, would exaggerate the nomothetic dimension and introduce the possibility of organizational dysfunction. Thus to counteract this possible accumulative effect, he satisfies his secondary orientations. Conversely the high LPC principal recognizes that his primary goals of maintenance and establishment of interpersonal relations may be too incongruent with his superintendent's expectations and reduces these incongruent expectations by considering the lower level BOHN in his decision-making.

Principals in Groups 2 and 3 showed no significant relationship between LPC scores and scores on the considered BOHN Form. A low IS and C superintendent and a superintendent whose leadership style had not yet been perceived by his principals, are similar in their influence on the principals' operating level of BOHN in their decision-making. This would seem to corroborate the previous conclusion that an elementary principal's consideration of BOHN in decision-making under "no superintendent" may be equivalent to an ineffective superintendent.

There are three important assumptions concerning BOHN that need further clarification and research support. These assumptions involve defining the specific organizational needs, the value attributed to them, and the relationship between organizational goals and organizational needs.

The needs of an organization are important. The levels of BOHN in decision-making may be related to the achievement of the organizational goals. These levels as defined in this study are easily produced, but to define them in more specific terms and to estimate their importance, is more difficult.

When one posits certain organizational needs a set of contrary needs can be posited.¹⁶ If security is posited as a need then Toynbee's observation that too much security can be stultifying can be considered, at least, as well taken, and a need for a moderate challenge or threat could be counterposed. A need for autonomy can be counter-

posed with a need for interdependence; an autonomous school may become immune from conversion processes, develop institutional drift, and exist for administrators and teachers rather than for students and community.

For the administrator to consider the higher ordered need in his decision-making satiation at the lower level need is necessary. Implicit in this assumption is that this is a favorable evolutionary process and an organization operating at the higher level is more effective, better, than an organization operating at a lower level, and that organizational goals are related to organizational needs. Since a school system is composed of multilevel administrators and specialists it would be interesting to discover if perceived organizational needs are the same at the top as they are at the bottom, if different departments perceive organizational needs differently, and if and how these perceived needs are related to such variables as productivity, morale and administrative influence.

What is needed to make the BOHN concept a useful tool for analyzing administrative behavior and organizational effectiveness is a more specific, yet powerful, definition of organizational needs and evidence to demonstrate that organizations operating at the higher ordered needs are, indeed, more effective than those operating at the lower ordered needs.

Conclusion

The two specific research questions in this study were:

- a. Do BOHN help govern the decision-making behavior of elementary school principals?
- b. If so, does his immediate administrator's leadership behavior affect the principal's perception of BOHN?

The majority of principals in this study feel that basic organizational needs are influential in their decision-making. Most principals considered some needs more thoroughly than others in their decision-making; most did not feel they should consider

basic organizational needs more fully than they previously did; most agreed that one need may take precedence over another in their decision-making; a majority did not believe all the needs to be of equal importance and did not think there might be a more suitable arrangement of needs than an hierarchical ranking.

The responses to the questionnaire of the three groups are similar. None of the six items tested for statistical significance showed evidence that the different treatments assigned to each group had any effect on the principal's conception of basic organizational hierarchical needs.

On the basis of the above evidence it would appear that the graduate administration students who were indoctrinated in the role of an elementary school principal do perceive a basic hierarchy of organizational needs and the prepotency and need satiation theory underlying the BOHN concept derives some support.

This study also attempted to compare the relative influence of second level administrators on subordinate perception of BOHN in decision-making in a simulation setting. The following conclusions seem warranted on the basis of the results of this study.

1. Only an effective second level administrator (characterized as being high on IS and C) influences his subordinates perception of BOHN.
2. Ineffective superintendents (characterized as being low on IS and C) or a superintendent whose leadership style had not yet been perceived by his principals do not affect the principal's consideration of BOHN in decision-making.
3. Principals with different leadership styles are differentially affected by effective immediate administrators. Principals who are more task oriented operate on higher level BOHN than principals who are more human relations oriented.

On the basis of the above it would appear that the perceived BOHN of the graduate students who were indoctrinated into the role of an elementary school principal in this simulation setting are affected, only, by effective second level administrators. Thus the effective superintendent may partially influence the performance of an organization by his influence on the principal's operational BOHN level in decision-making.

Notes

1. Hugh L. Thompson, James J. Hearn and Edward Fox, Jr., "A Hierarchy of Basic Organizational Needs in Liberal Arts Colleges", Educational Administrative Quarterly (Autumn 1970), pp. 56-77. For other studies that provide support for the organizational needs concept see: Rocco Carzo and John Yanouzas, Formal Organizations: A Systems Approach (Homewood, Illinois: Richard Irwin, Incorporated and the Dorsey Press, 1967), p. 476; Edward N. Litchfield, "Notes on a General Theory of Administration", Educational Administration: Selected Readings. Edited by Hack, Ranseyer, Gephart, and Heck. (Boston: Allyn and Bacon, Inc., 1965), pp. 335-336; Talcott Parsons, Essays in Sociological Theory (Illinois: The Free Press of Glencoe, 1949; rev. ed., 1954).
2. Abraham Maslow, Motivation and Personality (New York: Appleton-Century-Crofts, 1954).
3. Neal Gross and Robert E. Herriott, Staff Leadership in Public Schools (New York: John Wiley and Sons, 1965).
4. Andrew Halpin, Theory and Research in Administration (New York: Mc-Graw-Hill, 1967).
5. Floyd C. Mann, "Toward an Understanding of the Leadership Role in Formal Organizations", Leadership and Productivity. Edited by Robert Dubin, George Homans, Floyd Mann, and Delbert Miller. (San Francisco: Chandler, 1965) pp. 297-306.
6. Stanley M. Nealey and Milton R. Blood, "Leadership Performance of Nursing Supervisors at Two Organizational Levels", Journal of Applied Psychology, 52, (1968), pp. 414-422.
7. J. G. Hunt, "Leadership-Style Effects at Two Managerial Levels in Simulated Organization", Administrative Science Quarterly, 16, (1971), pp. 465-485.
8. Fred Fiedler, Personality, Motivational Systems and Behavior of High and Low LPC Persons, (Seattle: Organizational Research Laboratory, University of Washington, 1970). Fiedler's interpretation of the LPC score posits that leaders with a low score have achievement of task and material rewards as primary goals and development of good interpersonal relations as a secondary goal. High LPC scores indicate leaders that have establishment and maintenance of interpersonal relations as a primary goal with dominance and self enhancement as a secondary goal. Thus the LPC score reflects a hierarchy of goals.
9. University Council for Educational Administration (Columbus, Ohio: Ohio State University, 1966).
10. Aaron Lowin, William J. Hrapchak and Michael J. Kavanagh, "Consideration and Initiating Structure: An Experimental Investigation of Leadership Traits", Administrative Science Quarterly 14, (1969), pp. 238-253.
11. Edwin A. Fleishman, Edwin F. Harris and Harold E. Burtt, Leadership and Supervision in Industry (Columbus, Ohio: Bureau of Educational Research, Ohio State University, 1955).

12. The following are examples that illustrate the construction of the letter. A high factor loaded IS item on the SBDQ is "He criticizes poor work". This was written in the letter as "If I think you are not working up to par, I will tell you". As a low factor loaded IS item it was written as "I can't check your work closely. You will have to be your own critic".

A high factor loaded C item is "He stresses the importance of high morale among those under him". This was written as "If we don't have any hard feelings between us, the work will be more interesting and rewarding. I am concerned about keeping high morale in our system". As a low factor loaded C item this was written as "When we have work to get done, it has to get done and I can't stop to take account of your personal plans".

13. George A. Ferguson, Statistical Analysis in Psychology and Education (New York: McGraw-Hill Book Company, 1971).
14. H. Scheffé, The Analysis of Variance, (New York: John Wiley and Sons, Inc., 1959).
15. Thompson et al., op. cit.
16. Alvin W. Gouldner, "Metaphysical Pathos and Theory of Bureaucracy", Complex Organizations: A Sociological Reader. Edited by Amitai Etzioni. (New York: Holt, Rinehart and Winston, 1961), pp. 71-82.